

## SEQUENCE LISTING

<110> RheinBiotech Gesellschaft für neue biotechnologische Prozesse  
und Produkte mbH

<120> Heat-inducible promoter

<130> PCT1106-01966

<140>

<141>

<150> CH 1999 0279/99

<151> 1999-02-11

<160> 27

<170> PatentIn Ver. 2.1

<210> 1

<211> 792

<212> DNA

<213> Hansenula polymorpha

<400> 1

cttaaatacc acaataggaa aattatcaat aaagcttttc ggatttcatt acgttatatc 60  
gcaaaaaaat agtcgagctt tctgaaccgt tcgttaataa aaaaatagtt ttttcagatt 120  
tctatgttag gcagtcacga tagaattcca tcgaactcgt cagcgccaaa tgtgaatgcg 180  
gcttcaaaaa gcttgcga atttggatg gaaatccatg aatcgaagat gtcaaaatgg 240  
gggatcacaa aagtagacactc acgaggaaaa tcaaaacccctt ctcgtacctt taacacatac 300  
ggaaatgatc gatcgattt agaagattcc tcaatgattt tcgtcatata taggtatctg 360  
aggtatttat ggaccgattt gtaataacat catatacatc gcgcatttgc cctgtccca 420  
agatttcgat gaaaaaaagcg aattttatttca taatatttga agcatgccaa acatggggca 480  
gttgcattgt gtgagggtaa aatatcatga attgcaccca tcaaatgcag caagatatttgc 540  
accaatccta taatagaaaa cagacttacc acaaataatgt tgcgtatgcg atattatgaa 600  
tctccagatg aaaggctcga aagctatgaa gcctcttgcgaa acttttcatg gtgagataat 660  
attttcgaaa ttccacgaa cttctaaaac gcaattatttgc aatataaagg aaaaataata 720  
tttccatata gcaagcaaat caagctgcac tcctcatcct taaaactaat aaatcttacc 780  
catttgatac ca 792

<210> 2

<211> 15

<212> DNA

<213> Artificial sequence

<220>

<223> Description of the artificial sequence:  
Consensus sequence for a heat shock element

<400> 2

ngaannnnnn ngaan

15

<210> 3

<211> 15

<212> DNA

<213> Artificial sequence

<220>

J1046 U.S. PTO  
09/927811  
08/09/01



<223> Description of the artificial sequence: Special embodiment of the heat schock element

<400> 3  
ngaannbwmm ngaan

15

<210> 4  
<211> 15  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of the artificial sequence:  
nucleic acid sequence of a heat schock element

<400> 4  
tgaaggcctct tgaaa

15

<210> 5  
<211> 15  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of the artificial sequence:  
nucleic acid sequence of a heat schock element

<400> 5  
tgaatataaa ggaaa

15

<210> 6  
<211> 1903  
<212> DNA  
<213> Hansenula polymorpha

<400> 6  
atggtaaaag gtaatgttat agtggttca aatagaatcc cagtcactat taagaagact 60  
gaagatgatg aaaatggaaa atcaagatac gactatacaa tgtcatcagg cggatttagt 120  
acggcattac aagggctcaa aaatccatt cgatggttt gatggcctgg gatgtctgtt 180  
gatagcgaac agggacgaca aactgtcgag cgggatttga aggaaaaagtt caattgttat 240  
ccgatatggt taagtgacga aattgcagac ttacattata acggctttag caattctata 300  
cttggccat tggccacta tcaccaggg gagatgaatt ttgatgaaat tgcttggcc 360  
gcttatttgg aagcaaataa actgtttgc caaacgatct taaaggagat aaaagacggg 420  
gacgttatct gggtacatga ttatcatctc atgttggc cttcaactgct aagagaccaa 480  
cttaatagta aggggctacc gaatgtcaaa attggcttt tccttcatac tcctttcct 540  
tcaagcgaaa tatacaggat acttcctgtt aggaaagaaa ttctcgaagg agtgcttagt 600  
tgtgatttga taggtttcca cacctatgtatgtccgtc actttcttag ttcgggtgaa 660  
agaatatttga aattgcgaac gagccacaa ggtgttgcataatgatag acaggtgact 720  
gtaagtgcct atccgattgg cattgacgtt gacaaattct tgaatggct taagactgat 780  
gaggtcaaaa gcaggataaa acagctggaa accagattt gtaaagattt taaaacttatt 840  
attgggttgg acaggcttgg ttacatcaaa ggtgtaccc aaaaactcca cgcgttgaa 900  
attttcttgg agagacaccc tgagtggatt ggaaaagttt ttttgataca ggtggctgtc 960  
ccctcagcag gggacgttga agaataatcaa tctttgaggg cagctgtaaa tgagcttagt 1020  
ggaagaatca atggtagatt tggtaaccgtc gaatttgc tcatccattt ctttcataaa 1080  
agcgtgaact tccaagagct gatatactgtc tacgctgtca gtatgtttt tgtagtgc 1140  
tcgacacggg acggaatgaa ttggcgttgc tatgaataaca ttgttgc acaagatcga 1200  
aagggtatcc tagtactaag tgaatttgcg ggagctgtc agtcatataa tggcgctctc 1260  
gtagtgaatc catgaaatac agaagaactc agtgaagctt tttacgaagg cttgatcatg 1320  
agtgaagaga aaaggagggg caatttcag aagatgttca agtacattga gaaatataact 1380  
gcaagttattt gggagagaa ctttgatca gaattgacga gagtgtgatt actgtgggtt 1440

gcaggttaat ttgaaatgtt cactgtact tgaagaattt tatattatat acatgttata 1500  
 catcaatagg ataaaaattt agtagacaaa gttatcatt tggtggctg taaaaattga 1560  
 acgataacaa tatatttgcac aaaattaatt tgatctaatt gagctggagg gcgtaatata 1620  
 ttgggttcc tgaatcatct ttagatcac aatatggggc agcttcttc gcagccgatc 1680  
 acagagaaac acatcacact tgcacat gatcacat cgcattcaat cggggaaatg 1740  
 caaggataca ggttgaccat ggaagacgcg ttctgtgatt tgaacgaaag aatattcg 1800  
 acggaagagg gacttgcacat cagaaaaaca gacgagaata cagagggtga tctggagtct 1860  
 cttcaaattt acatttatgg tgcatttcacat ggacatggcg gtt 1903

<210> 7

<211> 475

<212> PRT

<213> Hansenula polymorpha

<400> 7

Met Val Lys Gly Asn Val Ile Val Val Ser Asn Arg Ile Pro Val Thr  
 1 5 10 15

Ile Lys Lys Thr Glu Asp Asp Glu Asn Gly Lys Ser Arg Tyr Asp Tyr  
 20 25 30

Thr Met Ser Ser Gly Gly Leu Val Thr Ala Leu Gln Gly Leu Lys Asn  
 35 40 45

Pro Phe Arg Trp Phe Gly Trp Pro Gly Met Ser Val Asp Ser Glu Gln  
 50 55 60

Gly Arg Gln Thr Val Glu Arg Asp Leu Lys Glu Lys Phe Asn Cys Tyr  
 65 70 75 80

Pro Ile Trp Leu Ser Asp Glu Ile Ala Asp Leu His Tyr Asn Gly Phe  
 85 90 95

Ser Asn Ser Ile Leu Trp Pro Leu Phe His Tyr His Pro Gly Glu Met  
 100 105 110

Asn Phe Asp Glu Ile Ala Trp Ala Ala Tyr Leu Glu Ala Asn Lys Leu  
 115 120 125

Phe Cys Gln Thr Ile Leu Lys Glu Ile Lys Asp Gly Asp Val Ile Trp  
 130 135 140

Val His Asp Tyr His Leu Met Leu Leu Pro Ser Leu Leu Arg Asp Gln  
 145 150 155 160

Leu Asn Ser Lys Gly Leu Pro Asn Val Lys Ile Gly Phe Phe Leu His  
 165 170 175

Thr Pro Phe Pro Ser Ser Glu Ile Tyr Arg Ile Leu Pro Val Arg Lys  
 180 185 190

Glu Ile Leu Glu Gly Val Leu Ser Cys Asp Leu Ile Gly Phe His Thr  
 195 200 205

Tyr Asp Tyr Val Arg His Phe Leu Ser Ser Val Glu Arg Ile Leu Lys  
 210 215 220

Leu Arg Thr Ser Pro Gln Gly Val Val Tyr Asn Asp Arg Gln Val Thr  
 225 230 235 240

Val Ser Ala Tyr Pro Ile Gly Ile Asp Val Asp Lys Phe Leu Asn Gly  
 245 250 255  
 Leu Lys Thr Asp Glu Val Lys Ser Arg Ile Lys Gln Leu Glu Thr Arg  
 260 265 270  
 Phe Gly Lys Asp Cys Lys Leu Ile Ile Gly Val Asp Arg Leu Asp Tyr  
 275 280 285  
 Ile Lys Gly Val Pro Gln Lys Leu His Ala Phe Glu Ile Phe Leu Glu  
 290 295 300  
 Arg His Pro Glu Trp Ile Gly Lys Val Val Leu Ile Gln Val Ala Val  
 305 310 315 320  
 Pro Ser Arg Gly Asp Val Glu Glu Tyr Gln Ser Leu Arg Ala Ala Val  
 325 330 335  
 Asn Glu Leu Val Gly Arg Ile Asn Gly Arg Phe Gly Thr Val Glu Phe  
 340 345 350  
 Val Pro Ile His Phe Leu His Lys Ser Val Asn Phe Gln Glu Leu Ile  
 355 360 365  
 Ser Val Tyr Ala Ala Ser Asp Val Cys Val Val Ser Ser Thr Arg Asp  
 370 375 380  
 Gly Met Asn Leu Val Ser Tyr Glu Tyr Ile Ala Cys Gln Gln Asp Arg  
 385 390 395 400  
 Lys Gly Ser Leu Val Leu Ser Glu Phe Ala Gly Ala Ala Gln Ser Leu  
 405 410 415  
 Asn Gly Ala Leu Val Val Asn Pro Trp Asn Thr Glu Glu Leu Ser Glu  
 420 425 430  
 Ala Ile Tyr Glu Gly Leu Ile Met Ser Glu Glu Lys Arg Arg Gly Asn  
 435 440 445  
 Phe Gln Lys Met Phe Lys Tyr Ile Glu Lys Tyr Thr Ala Ser Tyr Trp  
 450 455 460  
 Gly Glu Asn Phe Val Lys Glu Leu Thr Arg Val  
 465 470 475

<210> 8  
 <211> 2695  
 <212> DNA  
 <213> Hansenula polymorpha

<400> 8  
 cttaaataacc acaataggaa aattatcaat aaagcttttc ggatttcatt acgttatatc 60  
 gcaaaaaaat agtcgagctt tctgaaccgt tcgttaataa aaaaatagtt ttttcagatt 120  
 tctatgtgag gcagtcacga tagaattcca tcgaactcgt cagcgccaaa tgtgaatgcg 180  
 gcttcaaaa gcttgcga atttggatg ggaatccatg aatcgaagat gtcaaaatgg 240  
 gggatcaca aagtagacac acgaggaaaa tcaaaacctt ctcgtacctt taacacatac 300  
 ggaaatgatc gatcgattt agaagattcc tcaatgattt tcgtcatata taggtatctg 360  
 agtttattt ggaccgattc gtaataacat catatacattc gcgcttgc cctgtcccag 420  
 agatttcgat gaaaaagcgt aattttattc taatatttga agcatgccaa acatggggca 480

gttggatgtt gtgagggttaa aatatcatga attgcaccca tcaaatgcag caagatattg 540  
accatcccta taatagaaaa cagacttacc acaaataatgat tggatgcacg atattatgaa 600  
tctccagatg aaaggctcga aagctatgaa gcctctgaa actttcatg gtgagataat 660  
atttcgaaa ttccacgaa cttctaaaac gcaattattg aatataaagg aaaaataata 720  
tttccatata gcaagcaaat caagctgcac tcctcatcct taaaactaat aaatcttacc 780  
catttgatac caatggtcaa aggtatgtt atagtgttt ccaaataaat cccagtcact 840  
attaagaaga ctgaagatga tgaaaatgga aatcaagat acgactatac aatgtcatca 900  
ggcggattag tgacggcatt acaagggctc aaaaatccat ttcgatgggt tggatggct 960  
gggatgtctg ttgatagcga acagggacga caaactgtcg agcgggattt gaaggaaaag 1020  
ttcaattgtt atccgatatg gttaaatgtc gaaattgcag acttacatata taacggctt 1080  
agcaattcta tactttggcc attgttccac tatcaccag gggagatgaa ttttgcataa 1140  
attgcttggg ccgcttattt ggaagcaaat aaactgtttt gccaaacgat cttaaaggag 1200  
ataaaaagacg gggacgttat ctgggtacat gattatcatc tcatgttgc gccttcactg 1260  
ctaagagacc aacttaatag taagggctc cgaatgtca aaattggctt tttccttcat 1320  
actcctttc cttcaagcga aatatacagg atacttcctg taagggaaa aattctcgaa 1380  
ggagtgccta gttgtgatt gataggttt cacacctatg attatgtccg tcactttctt 1440  
agttcggtt aaagaatatt gaaattgcga acgagccac aaggtgttgc ctataatgat 1500  
agacaggtga ctgttaagtgc ttatccgatt ggcattgcg ttgacaaattt cttgaatgtt 1560  
cttaagactg atgagggtcaa aagcaggata aaacagctgg aaaccagatt tggtaaagat 1620  
tgtaaactta ttattgggtt ggacaggctg gattacatca aaggtgtacc tcaaaaactc 1680  
cacgcgtttg aaattttctt ggagagacac cctgagtgga ttggaaaagt tggatgtt 1740  
caggtggctg tcccctcactg agggacgtt gaagaatatac aatcttgcg ggcagctgt 1800  
aatgagctag tgggaagaat caatggtaga tttggtaccg tcgaatttgc tcctatccat 1860  
ttccttcata aaagcgtgaa cttccaagag ctgatatctg tctacgcgtc tagtgatgtt 1920  
tgtgtagtgt catcgacacg ggacggatgtt aatttggtca gttatgaata cattgctgt 1980  
caacaagatc gaaagggtac tctagacta agtgaatttg cgggagctgc tcagtcattt 2040  
aatggcgctc tcgttagtcaa tccatggaa acagaagaac tcagtgaagc tatttacgaa 2100  
ggcttgcata tgagtgaaga gaaaaggagg ggcaattttc agaagatgtt caagtacatt 2160  
gagaatata ctgcaagtt ttggggagag aactttgtga aagaattgac gagagtgtga 2220  
ttactgtggt ttgcaggtaa atttggaaatg ttcaactgtga cttgaagaat tttatattat 2280  
atacatgtta tacatcaata ggataaaaat taagtagaca aagttatcat ttgttgggc 2340  
tgtaaaaattt gaaacgataac aatataattt gaaaaattaa ttgtatctaa ttgagctgaa 2400  
gggcgtataa tatttggttt cctgaatcat cttgttagatc acaatatggg gcagcttctt 2460  
tcgcagccga tcacagagaa acacatcaca cttgtccaac atgatcacat atcgcattca 2520  
atcggggaaa tgcaaggata caggttgacc atggaagacg cgttctgtga ttgaacgaa 2580  
agaatattcg tgacggaaaga gggacttgac atcagaaaac aagacgagaa tacagagggt 2640  
gatctggagt ctcttcaaat taacattttt ggtgtctttg acggacatgg cggtt 2695

<210> 9

<211> 26

<212> DNA

<213> Artificial sequence

<220>

<223> Description of the artificial sequence: PCR primer F1 (forwards)

<400> 9

tggccvytnt tccaytacca tccygg

26

<210> 10

<211> 24

<212> DNA

<213> Artificial sequence

<220>

<223> Description of the artificial sequence: PCR primer RI (backwards)

<400> 10

ggcrtgbaay tttytghggaa cacc

24

```

<210> 11
<211> 23
<212> DNA
<213> Artificial sequence

<220>
<223> Description of the artificial sequence:
      sequencing primer F3 (forwards)

<400> 11
ggaagcaaat aaactgtttt gcc                                23

<210> 12
<211> 23
<212> DNA
<213> Artificial sequence

<220>
<223> Description of the artificial sequence:
      sequencing primer F4 (forwards)

<400> 12
ctgtaagtgc ttatccgatt ggc                                23

<210> 13
<211> 22
<212> DNA
<213> Artificial sequence

<220>
<223> Description of the artificial sequence:
      sequencing primer F6 (forwards)

<400> 13
ggacgacaaa ctgtcgagcg gg                                22

<210> 14
<211> 22
<212> DNA
<213> Artificial sequence

<220>
<223> Description of the artificial sequence:
      sequencing primer F7 (forwards)

<400> 14
catactcctt ttcccttcaag cg                                22

<210> 15
<211> 21
<212> DNA
<213> Artificial sequence

<220>
<223> Description of the artificial sequence:
      sequencing primer F8 (forwards)

<400> 15
aaagcgtgaa cttccaagag c                                21

```

```

<210> 16
<211> 22
<212> DNA
<213> Artificial sequence

<220>
<223> Description of the artificial sequence:
      sequencing primer F9 (forwards)

<400> 16
gcgtgtgatt actgtggttt gc                                22

<210> 17
<211> 26
<212> DNA
<213> Artificial sequence

<220>
<223> Description of the artificial sequence:
      sequencing primer F10 (forwards)

<400> 17
ggtgagataa tattttcgaa atttcc                                26

<210> 18
<211> 27
<212> DNA
<213> Artificial sequence

<220>
<223> Description of the artificial sequence:
      sequencing primer F11 (forwards)

<400> 18
cccatcaaat gcagcaagat attgacc                                27

<210> 19
<211> 21
<212> DNA
<213> Artificial sequence

<220>
<223> Description of the artificial sequence:
      sequencing primer R3 (backwards)

<400> 19
ccattcaaga atttgtcaac g                                21

<210> 20
<211> 23
<212> DNA
<213> Artificial sequence

<220>
<223> Description of the artificial sequence:
      sequencing primer R4 (backwards)

<400> 20
catgagatga taatcatgta ccc                                23

```

<210> 21	
<211> 23	
<212> DNA	
<213> Artificial sequence	
<220>	
<223> Description of the artificial sequence:	
sequencing primer R5 (backwards)	
<400> 21	
caatttgac attcggtac ccc	23
<210> 22	
<211> 22	
<212> DNA	
<213> Artificial sequence	
<220>	
<223> Description of the artificial sequence:	
sequencing primer R6 (backwards)	
<400> 22	
gtaatgccgt cactaatccg cc	22
<210> 23	
<211> 23	
<212> DNA	
<213> Artificial sequence	
<220>	
<223> Description of the artificial sequence:	
sequencing primer R7 (backwards)	
<400> 23	
gaacatcttc tgaaaattgc ccc	23
<210> 24	
<211> 21	
<212> DNA	
<213> Artificial sequence	
<220>	
<223> Description of the artificial sequence:	
sequencing primer R8 (backwards)	
<400> 24	
ctagctcatt tacagctgcc c	21
<210> 25	
<211> 25	
<212> DNA	
<213> Artificial sequence	
<220>	
<223> Description of the artificial sequence:	
sequencing primer R9 (backwards)	
<400> 25	
catagcttcc gagccttca tctgg	25

<210> 26  
<211> 24  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of the artificial sequence:  
sequencing primer Plasm. F (vorwärts)

<400> 26  
ggcgagcccg atcttcccca tcgg

24

<210> 27  
<211> 26  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of the artificial sequence:  
sequencing primer Plasm. R (backwards)

<400> 27  
ctgctcgctt cgctacttgg agccac

26